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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,290	RAMO ET AL.	
	Examiner	Art Unit	
	Michael N. Opsasnick	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Upon further review of the pre-appeal conference request received on 3/2/2007 and the pre-appeal conference decision dated 4/23/2007, the finality of the Office Action received on 11/24/2007 is removed, and the prosecution on the merits is reopened.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 27-31,40,47, recites the limitation "the audio signal" and "the characteristics of audio signal" in claims 27 and 31. There is insufficient antecedent basis for this limitation in the claim. It is not clear as to which "audio signal" (in both instances noted above) is referred to, i.e., is it the original audio signal that is encoded, or is it the synthesized audio signal of the decoder? Dependent claims 28-30,40, and 47 do not remedy the lack of antecedent basis problem in the independent claim(s), and as such, are also rejected under 35 U.S.C. 112 2nd for lack of antecedent basis.

4. Claims 27-31,40,47, are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The

omitted structural cooperative relationships are: as per claims 27 and 31, the relationship between the decoder, and the input. With respect to the claimed relationship between the decoder and "an input", it is not clear as to the interaction between the "input" and the decoder – the current claim scope refers to "an input for receiving audio data" that is somehow arranged "so as to allow the decoder to generate…". It is not clear how the audio data "allows the decoder" to function. Also, with respect to claims 27,31, the claim language following "a decoder" is non-functional descriptive language describing how the audio signal is encoded, but nothing regarding the decoding step. In other words, viewing the current claim scope pertaining to the decoder and in the input, there exists an input to receive audio data, a decoder, and the input audio data allows the decoder to generate a synthesized audio signal. (Examiner notes that an extra step of linking the input audio data to an active decoding process by the decoder would overcome this particular 112 rejection). Dependent claims 28-30,40, and 47 do not remedy the lack of antecedent basis problem in the independent claim(s), and as such, are also rejected under 35 U.S.C. 112 2nd for omitting essential structural cooperative relationships.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claim 26 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. As per the most recent interpretation of the Interim Guidelines

regarding 35 U.S.C. 101, claim 26 define non-statutory processes because the claim is toward computer code, and as claimed, does not define any structural and functional interrelationship between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized (Warmerdam, 33 F.3d at 1361,31 USPQ2d at 1760; Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035).

Claim Rejections - 35 USC § 102

7. Claims 1, 3-14, 19-21,26-37, 39-44,46-48 are rejected under 35 U.S.C. 102 (b) as being anticipated by Gersho et al. (6,311,154).

As to claim 1, Gersho et al. teach segmenting {partitioning or classifying} the audio signal {speech} into a plurality of segments {frames} (partitioning samples of a speech signal into frames, col. 4, lines 25-27) based on the audio characteristics {classes} of the audio signal (classifying the speech signal in each from into one of a plurality of classes, col. 4, lines 25-27); and encoding the segments {frames} with different encoding settings {excitation} (encoding an excitation for the frame using one of a plurality of excitation coding...selected according to the class of the frame, col. 4, lines 30-33).

As to claim 3, Gersho et al. teach characteristics {classes/classifying} include voicing characteristics {voice} in said segments {frames} of the audio signal { speech signal} (classifying the speech signal in each frame into classes, classes include voice frame, col. 4, lines 25-27 & 35).

As to claim 4, Gersho et al. teach characteristics {identifying} include energy

characteristics {presence of energy} in said segments {window} of the audio signal {residual signal } (identifying the location of a window, identifying considers the presence of energy in the residual signal, col. 4, lines 65-67).

As to claim 5, Gersho et al. teaches characteristics {positioning} include pitch characteristics {function of the pitch} in said segments {frames} of the audio signal (positioning the window at a location that is a function of a pitch of the frame, col. 4, lines 59-61).

As to claim 6, Gersho et al. teach segmenting {partitioning} is carried out concurrently {classifying and encoding} to said encoding {coding} (partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25. The classifying and encoding process may be done concurrently).

As to claim 7, Gersho et al. teach segmenting is carried out before said encoding (partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25, thus the classifying or segmenting is done before coding).

As to claim 8, Gersho et al. teach plurality of voicing values {voice or unvoiced} are assigned to the voicing characteristics of the audio signal in said segments, and wherein said Segmenting {partitioning} is carried out based on the assigned voicing values (classifying a frame is being one of an unvoiced or voiced, col. 4, lines 52-53).

As to claim 9, Gersho et al. teach a value designated {classifying} to a voiced speech signal and another value designated to an unvoiced signal (classifying a frame is being one of an unvoiced or voiced, col. 4, lines 51-52).

As to claim 10 Gersho et al. teach a value designated {classifier} to a transitional stage between the voice and unvoiced {transitional} signals {frame} (classifier for classifying a transition frame, col. 4, lines 52-55)

As to claim 11, Gersho et al. teach a value designated {(m)=l } to an inactive period {silent frame} in the audio signal {speech} (If (m)=l, then the current frame is declared a silent frame, col. 15, lines 7-8 & 35-37).

As to claim 12, Gersho et al. teach selecting a quantization mode for said encoding in order to improve the bit allocation and to reduce the parameter update rate, wherein the segmenting is carried out based on the selected quantization mode (col. 3 lines 45-49; Fig. 5 and col. 11 lines 4-16; col. 4, lines 36-37, col. 15, lines 35-36 & col. 9, lines 63-65).

As to claim 13, Gersho et al. teach segmenting is carried out based on target accuracy in reconstruction of the audio signal, wherein the target accuracy is selected based on distortion criteria comparing up-sampled quantized values (transmitted samples) and modified parameters (col. 9, lines 63-65 and col. 3 lines 45-49).

As to claim 14, Gersho et al. teach segmenting is carried out for providing a linear pitch representation in at least some of said segments (col. 9, lines 63-65; col. 3 lines 45-49 and col. 4 lines 50-62).

As to claim 19 and 27, Gersho et al. (154) teach an input for receiving audio data indicative of the parameters in the adjusted representation (input applied to element 14, Fig. 3). and a module responsive to the audio data for generating the audio signal based on the adjusted signals and the characteristics of the audio signal (Fig. 3. One would necessarily need a module to respond to an adjusted audio signal/characteristics of audio signals).

At the time of the invention, it would have been inherent to one of ordinary skill in to use a decoder in order to reverse the encoding data for further processing, such as modulating or storing the audio signal.

As to claim 20 and 28, Gersho et al. (154) teaches recording parameters (col. 29 lines 25-35);

As to claim 21 and 29, Gersho et al. (154) teach.
the audio data is transmitted through a communication channel and wherein the input of the decoder is operatively connected to the communication channel for receiving the audio data (digital communications, col. 1, line 1 and Fig. 3).

As to claim 26, Gersho et al. (154) teach, a code for determining the characteristics of the audio signal (LP coding, col. 8 lines 54- a code for adjustment the parameter based on the characteristics of the audio signal for providing an adjusted representation of the parameter, wherein said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signal and encoding the segments based on one or more of a plurality of encoding settings (LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63).

As to claim 30, Gersho et al. (154) teaches a mobile terminal (mobile base station, col. 6, lines 17-18).

As to claim 31, Gersho et al. (154) teaches implementing in a cell phone system which necessarily has both base station and mobile station adapted to communicating with the base stations (col. 6, lines 33-36); a decoder for use in parametric audio coding for generating a synthesized audio signal indicative of an audio signal having audio characteristics, wherein the audio signal is coded in a coding step into a plurality of parameters at a data rate and the encoding step is adjusted based on the characteristics of the audio signal for providing an adjusted representation of the parameters, wherein the said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signal and encoding the segments based on one or more of a plurality of encoding settings (Figs 1, 4-5, LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63).. an input for receiving audio data indicative of the parameters in the adjusted representation from

at least one of the base stations for providing the audio data to the decoder, so as to allow the decoder to generate the synthesized audio signal based on the adjusted representation (Figs 1, 4-5, col. 3 lines 1-15).

As to claim 32, Gersho et al. (154) teach, an input for receiving audio data indicative of end points defining a plurality of sub-segments, wherein the audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, and wherein the pitch contour data in the audio segment in time is approximated by a plurality of consecutive sub-segments in the audio segment, and wherein the end points include a first end point and a second en d point for defining each of said sub-segments (decoder, col. 6 lines 8-11 and Fig. 1); and a reconstruction module for reconstructing the audio segment based on the received audio data (Fig. 9; col. 6 lines 8-11).

As to claim 33, Gersho et al. (154) teach encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60).

As to claim 34, Gersho et al. (154) teach, the audio signal contains sinusoidal components (col. 3 lines 25-29, analysis windows made equal becomes sine) and said parameters include frequency values (Fig. 1 element 68), amplitude values (col. 3 lines 51-55) and phase

values indicative of the sinusoidal components (Fig. 1 element 76 and col. 3 lines 25-29).

As to claim 35, Gersho et al. (154) teach the parameters includes pitch (col. 4 line 60), voicing f(Fig. 9 element 42c), amplitude (col. 3 lines 51-55) and energy of the audio signal (col. 3 lines 42-44).

As to claim 36, Gersho et al. (154) teach the parameters include pitch contour data (col. 4 line 60-61) containing a plurality of pitch values inherently representative of an audio segment in time (col. 4 lines 59-63 and col. 2 lines 51-64).

As to claim 37, Gersho et al. (154) teach encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, Fig. 4, 8-9 and 14).

As to claim 40, Gersho et al. (154)teach encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, col. 6 lines 8-11).

As to claim 41, Gersho et al. (154)teach, wherein the audio signal comprises a plurality of frames and the audio signal in each frame has a waveform and wherein the further audio signal is

produced in the decoding stage independently of the waveform (col. 14 lines 8-14; col. 13 lines 62-67 and col. 14 lines 1-7).

As to claim 42, which depends on claim 1, Gersho et al. (154) teach wherein each segment has a segment length and wherein the segment length of at least one segment is different from the segment length of at least one other segment (col. 14 lines 8-14; col. 13 lines 62-67 and col. 14 lines 1-7).

As to claim 43, which depends on claim 19, Gersho et al. (154) teach wherein the audio signal comprises a plurality of frames and the audio signal in each frame has a waveform and wherein the module generates the further audio signal independently of the waveform (col. 14 lines 8-14, col. 13 lines 62-67 and col. 14 lines 1-7).
.14).

As to claim 44, which depends on claim 19, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As to claim 46, which depends on claim 26, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As to claim 47, which depends on claim 31, Gersho et al. (154) teach

wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As to claim 48, which depends on claim 32, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 15-18,22-25,38,45 are rejected under 35 U.S.C. 102(e) as being anticipated by Sinha et al (7191136).

As per claims 15,22,23,45, Sinha et al (7191136) teaches a method for use in a parametric audio coding to encode an audio signal by segmenting the audio signal into a plurality of segments based on audio characteristics of the audio signal (by high pass filtering the input audio signal (col. 4 lines 47-51), and then performing a non-linear parametric representation of the signal – col. 4 lines 53-59; wherein the data amount per processing depends upon the frequency characteristics of the audio signal, and the

characteristics analyzed can be peak analysis, lattice quantization, or frequency range selection – col. 3 lines 1-6); encoding the segments with different encoding settings (by choosing compression settings on-the-fly → col. 6 lines 43-47); also teaching upsampling (col. 7 lines 42-44) or downsampling (col. 7 lines 39-46).

As per claims 16-18,38, Sinha et al (7191136) teaches quantized and unquantized features (col. 3 lines 1-6)

As per claim 24, Sinha et al (7191136) teaches storage mediums (col. 8 lines 1-9).

As per claim 25, Sinha et al (7191136) teaches header information transmitted over communication channels (col. 6 line 64 – col. 7 line 7).

Response to Arguments

10. Applicant's arguments filed 2/26/07 have been fully considered. As per the arguments against the Gersho reference:

"Gersho also fails to disclose or suggest parametric audio coding as recited in claim 1, because Gersho is concerned with a CELP-type encoding method. In the parametric-type encoding method recited in claim 1, a parametric speech production model is used to obtain a set of parameters from the audio signal so as to produce a further audio signal in the decoder based on the parameters. The parametric-type encoding and decoding method, for example as discussed in the specification of the present application, does not rely on the waveform of the speech signal segments. In fact, due to the loss of the synchrony between the coder input and output signal, waveform matching is not carried out."

Examiner argues that although these limitations are present in the claim, the limitations are presented in the preamble only, are not reinforced in the body of the claim, and as such, these limitations are not afforded patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness

but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). With the parametric type encoding claim limitation in the preamble of the claim, along with absent reinforcement in the body of the claim, the Gersho reference still applies to claims 1-14,19-21,26-37,39-44,46-48. Examiner notes that claims 15-18,22-25,38, and 45 minimally reinforce the parametric aspect of the encoding process found in the preamble and therefore a new art rejection has been presented against these claims, as noted above.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see related art listed on the PTO-892 form.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Opsasnick, telephone number (571)272-7623, who is available Tuesday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Richemond Dorvil, can be reached at (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MICHAEL OPSASNICK
PRIMARY EXAMINER

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09/03/2007